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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,416	05/04/2004	James Zu-Chia Teng	SVL920040010US1	3415
45727	7590	06/19/2007	EXAMINER	
IP AUTHORITY, LLC			GORTAYO, DANGELINO N	
RAMRAJ SOUNDARARAJAN			ART UNIT	PAPER NUMBER
9435 LORTON MARKET STREET #801			2168	
LORTON, VA 22079				
		MAIL DATE	DELIVERY MODE	
		06/19/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/709,416	TENG ET AL.
	Examiner Dangelino N. Gortayo	Art Unit 2168

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 27 March 2007.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-21 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 04 May 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Response to Amendment

1. In the amendment filed on 3/27/07, claims 2-11 and 13-18 have been amended.

The currently pending claims considered below are Claims 1-21.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 12-14, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bray et al. (US Patent 6,529,905 B1).

As per claim 1, Bray teaches “A method for controlling concurrent access of prefix encoded nodes in a hierarchically structured document” (see Abstract and column 5 lines 4-32)

“comprising steps of: a. processing an explicit lock request on a node by determining ancestor nodes from said node,” (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

“b. deriving implicitly from said explicit lock request, a set of locks for said determined ancestor nodes,” (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

“c. comparing said derived set of implicit locks with existing lock modes for said determined ancestor nodes,” (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

“and d. granting or denying said explicit lock request on said node based on results of said comparing step.” (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

As per claim 2, Bray teaches “said hierarchically structured document is an XML document.” (column 5 lines 4-18)

As per claim 3, Bray teaches “said node is comprised of data and a node identifier (ID).” (column 5 lines 19-32)

As per claim 5, Bray teaches “granting said explicit lock request, one or more of said implicitly derived locks are implicitly applied to said ancestor nodes.” (column 8 lines 1-13, column 8 line 63 – column 9 line 5)

As per claim 12, Bray teaches “An article of manufacture comprising a computer usable medium having computer readable program code embodied therein which implements concurrent access control of prefix encoded nodes in a hierarchically structured document” (see Abstract and column 5 lines 4-32)

“comprising modules implementing code for: a. processing an explicit lock request on a node by determining ancestors nodes from said node,” (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

“b. deriving from said explicit lock request, a set of implicit locks for said determined ancestor nodes,” (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

“c. comparing said derived set of implicit locks with existing lock modes for said determined ancestor nodes,” (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

“and granting or denying said explicit lock request on said node based on results of said comparing step.” (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

As per claim 13, Bray teaches “said hierarchically structured document is an XML document.” (column 5 lines 4-18)

As per claim 14, Bray teaches “said node is comprised of data and a node identifier (ID).” (column 8 lines 1-13)

As per claim 19, Bray teaches “A system for controlling concurrent access of prefix encoded nodes in a hierarchically structured document” (see Abstract and column 5 lines 4-32)

“comprising: a. a processor receiving as input, an explicit lock request on a node and providing as output ancestors nodes determined from said node,” (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

“b. a converter receiving as input said explicit lock request and deriving as output a set of implicit locks for said output ancestor nodes,” (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

“c. a comparator comparing said derived set of implicit locks with existing lock modes for said output ancestor nodes,” (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

“and a lock request grantor, granting or denying said explicit lock request on said node based on output of said comparator.” (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

As per claim 20, Bray teaches “A method for controlling concurrent access of prefix encoded nodes in a hierarchically structured document” (see Abstract and column 5 lines 4-32)

“comprising steps of: a. processing an explicit lock release on a node by determining ancestors nodes from said node; said explicit lock release requested by a transaction;” (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

“b. deriving from said explicit lock release, a set of implicit lock modes for said determined ancestor nodes,” (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

“and c. releasing locks on determined ancestor nodes corresponding to said derived implicit lock mode; said locks on determined ancestor nodes originally requested by said transaction.” (column 8 line 63 – column 9 line 5, wherein the locks are released once the process is complete)

As per claim 21, Bray teaches “An article of manufacture comprising a computer usable medium having computer readable program code embodied therein which implements concurrent access control of prefix encoded nodes in a hierarchically structured document” (see Abstract and column 5 lines 4-32)

“comprising modules executing: a. explicit lock request processing on a node by determining ancestor nodes from said node,” (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

“b. implicit derivation of a set of locks for said determined ancestor nodes from said explicit lock request,” (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

“c. a comparison of said derived set of implicit locks with existing lock modes for said determined ancestor nodes,” (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

“and d. granting or denying said explicit lock request on said node based on results of said comparing step.” (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6-11, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bray et al. (US Patent 6,529,905 B1) in view of Sadjadi (US Patent 6,850,938)

As per claim 4, Bray is disclosed as per claim 1 above. Bray does not teach “said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode.” Sadjadi teaches “said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode.” (column 7 lines 4-33, wherein a lock manager can use different lock types ‘S’ for shared, ‘E’ for exclusive, and ‘O’ for optimistic).

It would have been obvious for one of ordinary skill in the art to combine Bray’s method of locking elements of a hierachal data structure using parent and child nodes

with Sadjadi's method of a lock for computer resource objects being of types shared, exclusive, and optimistic mode. This gives the user the advantage of being able to control more specifically the lock management of a hierachal data structure by adding fine granularity to lock management. The motivation for doing so would be to utilize optimistic locking in legacy databases using past locking systems without having to change the database schema (column 3 lines 26-57).

As per claim 6, Sadjadi teaches "said implicitly derived lock mode is any of: an intention-shared (IS), intention-exclusive (IX), or a shared, intention-exclusive lock (SIX) mode." (column 9 lines 14-43 and Table 1)

As per claim 7, Sadjadi teaches "a. an explicit lock request on said node in lock mode S implicitly derives a set of locks in IS mode," (column 10 lines 22-31)

"b. an explicit lock request on said node in lock mode X implicitly derives a set of locks in IX mode," (column 10 lines 32-40)

"c. an explicit lock request on said node in lock mode IS implicitly derives a set of locks in IS mode," (column 10 lines 41-50)

"d. an explicit lock request on said node in lock mode IX implicitly derives a set of locks in IX mode," (column 10 lines 51-61)

"and e. an explicit lock request on said node in lock mode SIX implicitly derives a set of locks in SIX mode." (column 11 lines 24-32)

As per claim 8, Sadjadi teaches "said lock request is denied if said comparison step results in incompatibility and granted otherwise;" (column 11 lines 46-56)

“said comparison step results in compatibility between said existing and derived lock modes if lock request mode for said node is: a. IS and said ancestor nodes are locked in any existing mode of: IS, IX, S, or SIX,” (Table 2 and column 12 lines 10-19)

“b. IX and said ancestor nodes are locked in either existing mode of: IS or IX,” (column 12 lines 39-45)

“c. S and said ancestor nodes are locked in either existing mode of: IS or S,” (column 12 lines 46-58)

“d. SIX and said ancestor nodes are locked in existing mode of IS,” (column 12 line 59 – column 13 line 6)

“and e. X and said ancestor nodes are not currently locked;” (column 13 lines 7-16, lines 26-33)

“and said comparison step results in incompatibility between said existing and derived lock modes, otherwise.” (column 13 lines 17-25)

As per claim 9, Bray teaches “said comparing step is facilitated by a logical data structure indicating existing lock information for each node; said logical data structure comprising logical lock tree nodes.” (Figure 3, 4 and column 4 lines 53-66)

As per claim 10, Bray teaches “said logical lock tree nodes are comprised of at least: a node ID field, a transaction ID field, and a lock mode field.” (column 5 lines 33-44)

As per claim 11, Bray teaches “granting a lock request, a logical lock tree node for said node is created and ID of said node is inserted into said logical lock tree node ID field, a transaction ID is inserted into said logical lock tree node transaction ID field, a

lock mode is inserted into said logical lock tree node lock mode field;” (column 5 lines 45-61)

“and if logical lock tree nodes exist for said ancestor nodes, adding either one or both of: a transaction ID to said logical lock tree node transaction ID fields and adding said lock mode to said logical lock tree node lock mode fields;” (column 8 lines 24-59)

“else creating logical lock tree nodes for said ancestor nodes, inserting IDs of said ancestor nodes into said logical lock tree node ID fields, inserting a transaction ID into said logical lock tree node transaction ID fields, and inserting a lock mode into said logical lock tree node lock mode fields.” (column 9 lines 8-47)

As per claim 15, Bray is disclosed as per claim 1 above. Bray does not teach “said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode.” Sadjadi teaches “said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode.” (column 7 lines 4-33, wherein a lock manager can use different lock types ‘S’ for shared, ‘E’ for exclusive, and ‘O’ for optimistic).

It would have been obvious for one of ordinary skill in the art to combine Bray’s method of locking elements of a hierachal data structure using parent and child nodes with Sadjadi’s method of a lock for computer resource objects being of types shared, exclusive, and optimistic mode. This gives the user the advantage of being able to control more specifically the lock management of a hierachal data structure by adding fine granularity to lock management. The motivation for doing so would be to utilize

optimistic locking in legacy databases using past locking systems without having to change the database schema (column 3 lines 26-57).

As per claim 16, Sadjadi teaches “said implicitly derived lock mode is any of: an intention-shared (IS), intention-exclusive (IX), or a shared, intention-exclusive lock (SIX) mode.” (column 9 lines 14-43 and Table 1)

As per claim 17, Sadjadi teaches “a. an explicit lock request on said node in lock mode S implicitly derives a set of locks in IS mode,” (column 10 lines 22-31)

“b. an explicit lock request on said node in lock mode X implicitly derives a set of locks in IX mode,” (column 10 lines 32-40)

“c. an explicit lock request on said node in lock mode IS implicitly derives a set of locks in IS mode,” (column 10 lines 41-50)

“d. an explicit lock request on said node in lock mode IX implicitly derives a set of locks in IX mode,” (column 10 lines 51-61)

“and e. an explicit lock request on said node in lock mode SIX implicitly derives a set of locks in SIX mode.” (column 11 lines 24-32)

As per claim 18, Sadjadi teaches “said comparison step results in compatibility between said existing and derived lock modes if lock request mode for said node is: a. IS and said ancestor nodes are locked in any existing mode of: IS, IX, S, or SIX,” (Table 2 and column 12 lines 10-19)

“b. IX and said ancestor nodes are locked in either existing mode of: IS or IX,” (column 12 lines 39-45)

"c. S and said ancestor nodes are locked in either existing mode of: IS or S,"
(column 12 lines 46-58)

"d. SIX and said ancestor nodes are locked in existing mode of IS," (column 12
line 59 – column 13 line 6)

"and e. X and said ancestor nodes are not currently locked;" (column 13 lines 7-
16, lines 26-33)

"otherwise, said comparison step results in incompatibility between said existing
and derived lock modes." (column 13 lines 17-25)

Response to Arguments

6. Applicant's amendment, see page 2, filed 3/27/2007, with respect to the rejection
of claims 2-11 and 13-18 under 35 USC 112, second paragraph have been fully
considered and are persuasive. The rejection of claims 2-11 and 13-18 under 35 USC
112, second paragraph has been withdrawn.

7. Applicant's arguments, see page 11, filed 3/27/2007, with respect to the 35 USC
102(b) rejection of claims 1-3, 5, 12-14, and 19-21 have been fully considered but they
are not persuasive.

a. Examiner is entitled to give claim limitations their broadest reasonable
interpretation in light of the specification. See MPEP 2111 [R-1]

Interpretation of Claims-Broadest Reasonable Interpretation During patent
examination, the pending claims must be 'given the broadest reasonable

interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 162 USPQ 541,550-51 (CCPA 1969).

b. Applicant's argument is stated as Bray does not disclose prefix encoded nodes.

In regards to the argument, Examiner respectfully disagrees. Bray, in Figure 3 and column 5 lines 4-32, teaches that a document is represented in a hierarchy, with each level of the hierarchy represented by a name according to a document type definition. The grouping of the nodes in this example utilizes identifiers such as "Document", "Volume", "Section", or "Requirement", and a specific node is identified with this grouping identifier and a unique identifier, such as "A", "B", or "1". The grouping identifier always appears before the unique identifier and is encoded into the node via a document type definition. Therefore, Bray teaches prefix encoded nodes.

c. Applicant's argument is stated as Bray does not disclose implicitly deriving from said explicit lock request a set of locks for said determined ancestor nodes.

In regards to the argument, Examiner respectfully disagrees. Bray, in the previous limitation and column 5 lines 33-60, teaches how a lock request is received by a lock manager and determines the type of lock applied to a specific target node. From this lock, a manager can determine the type of lock to be

applied to the target node and other nodes that are connected to a target node, such as a parent node being locked for a time without having to specify a parent node having to be locked in the client lock request, as per claim 5 line 62 – column 6 line 4. For example, one specific type of lock is a delete lock, wherein a lock is placed on the target node and a lock is also placed on the target node's parent, without having to specify it in the lock request, as disclosed in column 8 line 63 – column 9 line 5. The lock placed on the parent node of a target node is not specified from a lock request, but rather is implicitly applied based on the actions of a lock manager and the rules that apply to specific locks. Therefore, Bray teaches implicitly deriving from said explicit lock request a set of locks for said determined ancestor nodes.

d. Applicant's argument is stated as Bray does not disclose implicitly applying the set of derived implicit locks to the nodes.

In regards to the argument, Examiner respectfully disagrees. As stated above and in column 8 line 63 – column 9 line 5, the lock applied to the parent node of a target node is applied when a delete lock is granted to the target node. As stated above, the lock for the parent is not explicitly stated in the lock request from a client, but rather is automatically executed when the lock request for a target node is detected, and is determined by the lock manager and lock rules outlined in Bray. Therefore, Bray teaches implicitly applying the set of derived implicit locks to the nodes.

8. Applicant's arguments, see page 12, filed 3/27/2007, with respect to the 35 USC 103(a) rejection of claims 4, 6-11, 15-18 have been fully considered but they are not persuasive.

e. Applicant's argument is stated that there is no realistic motivation to combine the teachings of Bray and Sadjadi.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Bray teaches a method of locking nodes in a hierachal data structure for simultaneous access to portions of the data structure (column 2 lines 53-63). Sadjadi teaches a method of concurrent access to objects in a database by generating a lock data structure (column 3 line 60 – column 4 line 14). Both references are concerned with providing a lock mechanism to data to allow concurrent access from multiple users. Consequently, the ordinary skilled artisan at the time of the invention would have been motivated to combine the references since Sadjadi's method of utilizing different lock types, including shared, exclusive, and optimistic mode when providing a lock for an object can

be incorporated into Bray's method of locking elements in a hierachal data structure to provide fine granularity to lock management and to gain more specific control when locking said elements, since the optimistic locking of Sadjadi can then be utilized in the system of Bray, without having to change the existing database schema (column 3 lines 26-57). Thus, the combination of Bray and Sadjadi teaches all the elements of the claims of the claimed invention.

Additionally, the applicant's cited argument that no locking mechanism is needed for simply viewing a document (see page 13) is a reason for Sadjadi's share lock mode to be incorporated into the system of Bray, since both are concerned with providing concurrent access to multiple users utilizing locks on data. Nowhere in the claims is it specified that the locks applied to nodes are solely concerned with viewing objects, and the locking mechanism provided by Bray is concerned with general access to nodes in a hierachal structured document.

f. Applicant's argument is stated that Sadjadi does not teach intention locks.

In response to the arguments, Examiner respectfully disagrees. The optimistic lock of Sadjadi is a type of access that "anticipates" a future lock on a node and does not prevent a second process from obtaining a shared or optimistic lock (column 2 lines 42-53). The Examiner reads this to be analogous to the intention lock of the Examiner, wherein the lock is applied to ancestor nodes of a target node for future locking. Adding in the optimistic lock of Sadjadi to the system of locking elements in a hierachal data structure of Bray is

explained in the argument above. Since the elements of Sadjadi have already been incorporated in the invention of Bray in its previous claim, utilizing Sadjadi to provide more options when locking the data elements of Bray is acceptable. The implicit locks are applied to parent claims by Bray, and it is determined what different lock modes the explicit lock belongs to according to Sadjadi. Therefore, Sadjadi teaches intention locks and that the explicit lock can be of different modes.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dangelino N. Gortayo whose telephone number is (571)272-7204. The examiner can normally be reached on M-F 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim T. Vo can be reached on (571)272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dangelino N. Gortayo
Examiner

Tim Vo
SPE

DL



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